temperzone
QUALITY AIR CONDITIONING

Ducted Packaged Roof Top Air Conditioners

Product Review
OPA-RK Series

R410A

Extra Long Life
Epoxy Coated Outdoor Coil

Nominal Cooling Capacity
10 kW – 96 kW

Now Including
diGital
MODELS

OCTOBER 2010

OPA-RK SERIES - DUCTED PACKAGED ROOF TOP AIR CONDITIONERS

GENERAL

The OPA Series Roof Top air conditioners have been conceived from the start as reverse cycle (heat pump) packaged systems – designed to be efficient both when heating and cooling.

TEMPERZONE LIMITED

temperzone is one of Australasia's largest manufacturers of reverse cycle packaged air conditioners. The company has been supplying units to the commercial and industrial markets for over 35 years. Manufacturing facilities are located in New Zealand and Australia.

temperzone's mission is to provide the most competitively priced, reliable and efficient air conditioning equipment available to the international market.

APPLICATIONS

Ducted packaged systems are unobtrusive, quiet, and designed to provide year round comfort – warming in Winter and cooling in Summer. **temperzone**'s wide product range offers a unit of performance capacity to suit small to large packaged air conditioner applications, e.g. offices, shops, motels, fast food outlets, restaurants, petrol stations, open plan office and work spaces, supermarkets, shopping malls and auditoriums.

temperzone ducted systems are particularly suitable for rooms with suspended tile ceilings. Not only is valuable wall space preserved, but also the conditioned air can be ducted to the parts of the room where it is most needed.

OPA units are suited to high static pressure applications where large volume spaces are to be air conditioned. Long pipe and duct runs are possible enabling greater installation flexibility.

This range of units have been developed to meet the needs of typical applications. Should you have special requirements, such as higher air flows or greater sensible duty units contact your nearest **temperzone** representative. **temperzone** engineers have extensive experience in designing air conditioning equipment for specific applications.

FEATURES

Refrigerant R410A. Each system uses refrigerant R410A which is deemed to have zero ozone depletion potential.

Digital Scroll Compressor. 'Digital' systems include a digital scroll compressor, plus a conventional scroll compressor on twin systems. Each digital model/version provides a variable capacity ability that enables closer control of room temperature. This is achieved by avoiding on/off cycling of the compressor. These compressors have proven very reliable because of their design simplicity. Electrical harmonic noise is very low.

Efficient. These reverse cycle (heat pump) air conditioners provide one of the most efficient forms of heating you can invest in. For every 1 kW of power consumed, up to 3 kW of heat is generated. Each outdoor unit incorporates high efficiency scroll or rotary compressor/s. Heat exchange coils use inner grooved (rifled) tube for better heat transfer.

Performance. These systems have been designed and tested to perform in ambient conditions as low as -5°C and as high as 50°C.

Durable. **temperzone** packaged systems are built tough to withstand all weathers. Their durable construction ensures a long life and excellent return on your investment.
The outdoor air coils' aluminium fins are epoxy coated for extra protection in corrosive environments, e.g. salt laden sea air. Cabinets are constructed from high grade galvanised steel - polyester powder coated (grey) for all weather protection. External fasteners are stainless steel. Corrosion resistant drain trays are also included. Fan motor bearings are sealed for life so as not to incurr regular maintenance.

Insulation. Indoor air sections are generously insulated to reduce condensation and contain noise.

Self Diagnostics. Unit's include a controller (OUC) that has a display of LEDs to indicate faults and running conditions. A general fault indicator is included for interface to external systems.

Safety. The refrigeration systems includes a number of protection facilities, including: HP and loss of refrigerant indication, anti rapid cycle timers, frost protection, circuit breaker control circuits, electronic de-ice switch, crankcase heaters and 24 V control (OPA 225RK – OPA 960RK).

Configurations. Two versions are available for models OPA 225RK – OPA 960RK :
1. Horizontal supply/return air with box mounting channel, or
2. Downward supply air with box mounting channel.

Models OPA 100RK–170RK are all horizontal configuration.

OPA 100RK – OPA 170RK use multi-speed direct drive indoor air fans, while OPA 225RK – OPA 960RK use belt drive fans with adjustable pulleys to match the supply air/ static pressure requirements.

Economy. Some models (refer table) feature the flexibility and economy of two stage operation. Compressors are progressively switched on only as they are needed. This has the added advantage of lowering start-up current.

Economiser Option. If the outdoor air temperature or enthalpy is below that of the return air, the compressor stops, a fresh air damper opens and the return air damper closes. Operating costs are reduced as free cooling is obtained. Fresh air dampers close to a minimum setting and return air dampers open before normal compressor operation resumes.

Fresh Air Introduction. An optional fresh air damper is available for most models (refer table). For applications using high proportions of fresh air (50%+) a limiting thermostat will be custom fitted to stop the compressor/s when the air-on coil temperature is too low (18°C minimum).

User Friendly. Two room temperature controllers are available - refer options below. Both controllers have been designed to maintain a high level of comfort for room occupants. Emphasis has been placed on providing controls that are easy to use — despite the sophisticated microprocessor system that runs it. Use of the Auto and Timer function settings allows you to "set it and forget it".

Peace of Mind. The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001**: 2000. **temperzone** products have been chosen, against worldwide competition, for use in some of the most exclusive projects — chosen because of their proven efficiency, durability, performance, reliability and value.

OPTIONS

- Pleated fiiters, 50mm thick on OPA 225 - 960
- SAT Controller Kits for non-digital models with 24V or 230V control.
- TZT-701 Controller Kit for all models (incl. digitals) with 24V or 230V control.
- Electric boost heat (factory fitted on all except OPA 100-170)

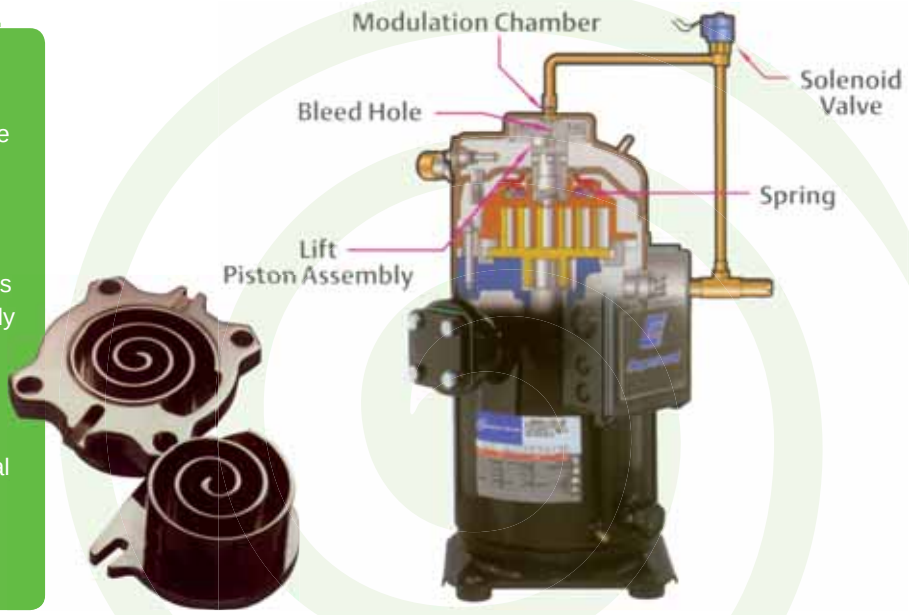
new diGital models!

SECRETS OF THE SCROLL

Introducing one of the first compressors to deliver a capacity range from 10% to 100% without the use of inverters.

Digital compressors ensure high efficiency through a unique feature termed axial compliance. This allows the fixed scroll to move incrementally in the axial direction to ensure that fixed and orbiting scrolls are always loaded together with optimal force.

With 70% fewer moving parts, digital compressors deliver enhanced performance with reliable and uncomplicated design.



Extended Capability. Digitals are particularly suitable for applications requiring full or high proportions of fresh air, VAV, close control and supply air temperature control.

Control Option. The compressor is controlled variably by a 0–10 volt DC signal that can be supplied either by a BMS system, a sophisticated controller or temperzone's optional TZT-701 Controller.

DIGITAL MODELS

Model			OPA 170G	OPA 285G	OPA 385G	OPA 440G
Nominal Cooling Capacity *1		kW	16.9	28.9	38.1	44.7
Net Cooling Capacuty		kW	16.1	27.72	36.44	42.70
E.E.R. (cooling)			2.82	3.13	3.06	2.93
Heating Capacity *2		kW	17.1	25.8	34.4	43.4
Supply Air Flow (nominal)		l/s	950	1560	1900	2350
Sound Pressure Level (SPL) *3		dB(A)	52	62	65	62
Sound Power Level (SWL) *4		dB(A)	68	78	81	78
Power Supply *5			400—415 V a.c. 50 Hz			
Running Amps (Total System)		A	12 / 11 / 11	18 / 15 / 15	22 / 20 / 19	31 / 26 / 26
Recommended External Protection		A/ph.	25	80	50	50
Dimensions :	Width	mm	1160	1590	1830	1970
	Depth	mm	1200	1830	1665	1685
	Height	mm	1070	1355	1355	1555
Weight		kg	209	425	582	703
Features *6			a e g w	a b c g u v w z	a b c g u v w z	a b c u v w z

*6 Key to Features:

a – 24 volt control
b – Twin compressor system (twin circuit) - enables staging and low start-up current
c – Fresh air damper option
e – Electric Heat Kit option
g – Digital compressor (single)
u – Downward supply/return air c/w box mounting channel option
v – Belt drive indoor fan
w – Optional TZT-701 Controller
z – Economiser option

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DUCTED PACKAGED ROOF TOP SYSTEMS

NON DIGITAL MODELS

Specifications Overview

Model			OPA 100	OPA 135	OPA 155	OPA 170	OPA 225	OPA 280	OPA 333
Nominal Cooling Capacity *1		kW	10.6	13.9	15.2	16.8	22.7	28.4	34.0
Net Cooling Capacity		kW	10.42	13.23	14.29	16.1	21.70	27.30	32.40
E.E.R. (cooling)			2.80	3.01	2.78	2.94	3.16	3.06	3.11
Heating Capacity *2		kW	10.7	13.4	15.6	16.4	22.3	27.2	31.1
Supply Air Flow (nominal)		l/s	575	775	850	950	1260	1650	1800
Sound Pressure Level (SPL) *3		dB(A)	49	55	55	55	56	57	65
Sound Power Level (SWL) *4		dB(A)	65	71	71	71	72	78	81
Power Supply *5			400—415 V a.c. 50 Hz						
Running Amps (Total System)		A	7 / 5 / 6	11 / 8 / 8	11 / 8 / 8	12 /11/ 11	15 /14/ 14	18 /15 /15	21 /18 /18
Recommended External Protection		A/ph.	25	25	25	25	25	40	40
Dimensions :	Width	mm	1160	1200	1200	1200	1570	1670	1830
	Depth	mm	1050	1110	1110	1160	1490	1490	1665
	Height	mm	910	910	910	1070	1245	1500	1355
Weight		kg	160	189	184	209	398	509	553
Features *6			e	e	e	e	a c u v z	a c u v z	a c u v z

Model			OPA 440	OPA 595	OPA 650	OPA 850	OPA 960
Nominal Cooling Capacity *1		kW	44.7	59.7	64.6	85.1	96.0
Net Cooling Capacity		kW	42.70	56.60	60.50	80.09	87.90
E.E.R. (cooling)			2.93	3.07	2.75	3.04	2.80
Heating Capacity *2		kW	43.4	52.7	60.9	83.5	90.0
Supply Air Flow (nominal)		l/s	2350	3100	3500	4200	5200
Sound Pressure Level (SPL) *3		dB(A)	62	66	66	66	67
Sound Power Level (SWL) *4		dB(A)	78	85	85	84	85
Power Supply *5			400—415 V a.c. 50 Hz				
Running Amps (Total System)		A	33 / 28 / 28	38 / 34 / 34	40 / ph.	47.5 / ph.	55 / ph.
Recommended External Protection		A/ph.	50	80	80	100	120
Dimensions :	Width	mm	1970	2225	2225	2790	2790
	Depth	mm	1685	1950	1950	2150	2150
	Height	mm	1555	1860	1860	1860	1860
Weight		kg	703	890	890	1162	1233
Features *6			a b c u v z	a b c u v z	a b c u v z	a b c u v z	a b c u v z

TWIN SYSTEM

*6 Key to Features:

a – 24 volt control
b – Twin compressor system (twin circuit) - enables staging and low start-up current
c – Fresh air damper option
e – Electric Heat Kit option
u – Downward supply/return air c/w box mounting channel option
v – Belt drive indoor fan
z – Economiser option

Notes

Filters are optional. Refer to separate Technical Data pamphlets for performance data under a range of conditions.

*1 Nominal Cooling Capacity at AS/NZS 3823 conditions: Indoor Entering Air Temperature 27°C D.B., 19°C W.B.; Outdoor Entering Air Temperature 35°C D.B.
Net Cooling Capacity figures at AS/NZS 3823 include an allowance for fan motor heat loss.

*2 Nominal Heating Capacity at AS/NZS 3823 conditions: Indoor Entering Air Temperature 21°C D.B.; Outdoor Entering Air Temperature 7°C D.B., 6°C W.B.

*3 Radiated SPL at 3 m and at nominal air flow.

*4 Supply air outlet at nominal air flow.

*5 Voltage fluctuation limits: 342 – 436 V.

*6 Key to Features:

a – 24 volt control
b – Twin compressor system (twin circuit) - enables staging and low start-up current
c – Fresh air damper option
e – Electric Heat Kit option
g – Digital compressor (single)
u – Downward supply/return air c/w box mounting channel option
v – Belt drive indoor fan
w – Optional TZT-701 Controller
z – Economiser option

NOMENCLATURE

Nomenclature

e.g. **O P A 5 3 0 R K T B G H**

Series	*Size*	*Type*
O - Outdoor **P** - Packaged **A** - Air Cooled	Divide by 10 to get approx. nominal Capacity in kilowatts	**R** - Reverse cycle **K** - Refrigerant R410A **T** - Three phase power supply **B** - Twin compressor system (twin circuit) **G** - Digital compressor (single) **H** - Horizontal discharge supply air fan **U** - Downward discharge supply air fan

Optional SAT Wall Thermostat
for non-digital systems

Materials and specifications subject to change without notice due to the manufacturer's ongoing research and development programme.

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visit our website **www.temperzone.biz**

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